master framework to coordinate study and action throughout the profession, then an organizational instrument might be created that could in fact bring the special knowledge and expertise of the medical profession effectively to bear, simultaneously, on so many of the things organized medicine ought to be doing with so many of the presently unstudied and unsolved problems in health care.

MSMW

Screening for Disabilities

ELSEWHERE IN THIS ISSUE Foster and colleagues have provided an excellent description of the activities that physicians should use in their efforts to prevent disabilities or to identify existing disabilities as early as possible. We know why such efforts are important from a medical standpoint. When we cannot actually prevent disabilities, time is of the essence in our efforts to contain and compensate for the effects of a given disability and to hold unnecessary involvement to a minimum.

Where we often fail in medicine, I believe, is in considering the total impact of a disability on the life functioning of our patients. Because our perspective is too physiological, we sometimes miss opportunities to have our medical interventions contribute to improved functioning for the individual person in the world at large. If our choice of medical intervention could be based not only on consideration for the medical condition but also on consideration for keeping a child in school or maintaining a young adult in a vocational program, our patients' well-being would be better served.

Disabilities can affect all aspects of a person's life—educational, employment and social—not just those bracketed off as "health" concerns. Serving patients with disabilities calls for a broad awareness of the nature of disabling conditions in this country and of the service system that is involved with persons with disabilities. For a physician working with disabled patients, this awareness requires the following:

- A knowledge of the facts about disabling conditions. What are the nature and size of the population of persons with disabilities? When are these conditions most likely to occur? How can we be alert to vulnerable periods?
- A knowledge of the resources available for persons with disabilities, locally and in federal and state programs, so that working relationships can be established with the professionals who are or should be involved with a patient at the same time the physician addresses medical needs.

The Population

From 1% to 2% of all newborns have discernible disabilities or developmental defects. This includes visibly obvious structural anomalies such as spina bifida, congenital heart defects that require more subtle examination techniques for detection and problems discovered via biochemical analysis, such as phenylketonuria. Also included are infants having intracranial hemorrhages, respiratory problems requiring ventilation or severe infections occurring during the neonatal period.

Approximately 10% of all children enrolled in this nation's schools are eligible for special education or "related services" under Public Law 94-142, the Education of All Handicapped Children Act of 1975. This includes those with disabling conditions and other developmental problems that interfere with the *education* of a child, including such conditions as relatively mild, transient speech-articulation defects. We seem to be doing well at identifying sensory, cognitive, intellectual or learning problems that directly affect the educational needs of a child, but sometimes children with physiologic disease, motor disorders or emotional problems are less well identified by the education system because the problem does not directly affect the child's educational process.

Approximately 15% of the adults between 18 and 65 years of age in this country are considered disabled to the extent that they do not participate in regular employment. This includes persons affected by severe disabling conditions such as quadriplegia or mental retardation, chronic lower back disabilities, mental illness and those who are malingering.

Approximately 1% of the persons in this country, including some members of the previously described populations, have sensory, cognitive, motor, physiologic or mental health disorders that were manifest before age 22 years and that significantly affect their functional lives. They are known as persons with *developmental disabilities* according to Public Law 98-527, the Developmental Disabilities Act of 1984.

The percentage of persons with developmental disabilities remains fairly constant, both relatively and absolutely. Advances in medical and surgical treatments (such as cardiac surgery) permit a limited number of disabled persons to achieve fully functional lives. Some achieve independence through bioscientific achievements, such as out-of-hospital ventilatory assistance, and others through evolving positive societal attitudes, such as employment opportunities for those with significant retardation. It appears that accidents, degenerative diseases that do not manifest until the teenage years and complications of disease such as arthritis, diabetes and other medical conditions are the principal reasons for additions to the disabled population that cause the rate to remain essentially at 1% of the nation's population over time.

Genetic defects, including chromosomal aberrations, and prenatal environmental causes constitute a large percentage of developmental problems. The majority of prenatal causes remains unknown. At the present time, prenatal identification of such genetic and environmental causes exists for a meaningful but yet small percentage of those who will eventually manifest developmental disabilities. Perinatal causes, especially hypoxia, anoxia and infections, account for a large proportion of all developmental disorders.

An important segment of the developmentally disabled population is made up of children known to have renal disease, cardiomyopathies, muscular disorders, mental illness and other disorders that worsen over time and eventually significantly affect physical and cognitive functions. Knowledgeable physicians and other health professionals initiate screening procedures in their practices to identify their patients who show such signs and symptoms and coordinate or provide the required evaluation and referral services.

Physicians who care for adolescents and young adults often treat the residuals of vehicular accidents, attempted homicides, industrial and construction accidents, diving and other sports-related injuries typical of the fast-paced, action-oriented lives of this segment of our population. This patient cohort's need is not screening for identification, but periodic monitoring to ensure that needed services are available and that the young person is known to all the required educational,

health, vocational and independent-living agencies that can provide appropriate services. Additionally, repetitive depressive episodes, near suicides with mental or physical residuals and eating disorders all have the potential to significantly and permanently affect a young person's life before age 22 years and to qualify that person for services for developmental disability.

Resources

Less than half of the US childhood population regularly visits physicians for child health supervision activities after 36 months of age. This mandates a cooperative process between a child's physician, who has cumulative health and developmental information, and personnel from the child's school who screen and evaluate preschool and school-aged children under PL 94-142 regulations.

In addition, there remains a need for additional physician-initiated clinical activities to effectively screen older children, adolescent and young adult populations to ensure that all persons with developmental disabilities are not only identified but also adequately evaluated and provided with needed services.

But beyond the screening efforts, we need also to make efforts to integrate our medical services with community, state and federal programs that can contribute to the quality of life for patients with disabilities. We should not only be treating the medical problems of a child with spina bifida in our offices, but should also be working closely with school personnel to see that our recommendations for bladder management fit optimally with the child's normal activities and that the school personnel can carry out such recommendations. Does the adolescent we have seen after a suicide attempt have contact with community mental health and family support services, and how can we contribute to the ongoing efforts of those services? How can we steer a high school student with a degenerative neuromuscular disorder toward the vocational services that could help that patient toward a possible career?

This broad approach has not traditionally been within the scope of most clinical practices. In the case of disabling conditions, the awareness of nonmedical needs and resources to meet them is vital to a patient's well-being. For physicians, such integrative efforts offer a way to make the often great challenges of patients with chronic disabilities a shared and more rewarding responsibility.

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Ancient Sources of Lead and Lead Poisoning in the United States Today

LEAD IS ONE of the ancient metals. A lead statue in the British Museum discovered in Turkey dates from 6500 BC.[1] Lead has been mined, smelted and used in cosmetics, internal and topical medicinal preparations, paint pigments and glazes throughout the Old World since earliest recorded history.[2] Elsewhere in this issue, two recent cases of lead poisoning in children are presented—one due to azarcon, a Hispanic folk remedy containing lead tetroxide, and the other due to the close proximity of the child's home to a secondary lead smelter. The physicians handling these cases are to be congratulated. Owing to the nonspecificity of the classic clinical manifestations of plumbism, its diagnosis has baffled physicians from antiquity[2] to recent times. Two recent baffling cases were traced to ancient uses of lead, namely, a lead-glazed ceramic mug[3] and a lead-contaminated health food calcium dietary supplement.[4] The definitive laboratory test for the diagnosis of lead poisoning is a whole blood lead test, which has become widely available only in the past decade. Within the past few months, the National Bureau of Standards has made available a certified standard reference material for blood lead analysis (SRM 955, available from the United States Department of Commerce, National Bureau of Standards, Washington, DC 20234) that should further improve the quality of blood lead data.

Lead-bearing ores often contain silver. Following the discovery about 4000 BC of cupellation, a simple process by which silver can be recovered from lead ores, lead was extensively mined throughout the Old World, mainly for its silver content. Nriagu[2] estimates that more than 40 million tons of lead had been produced by the time of the fall of Rome. Although the fact is not recorded, it is not unlikely that children near ancient lead mines and smelters were poisoned in a manner similar to that reported by Sawyer and colleagues. In this most recent case the physicians, having made the diagnosis, are to be congratulated in particular for having taken the next important step, namely, visiting the child's home to collect environmental samples to identify the child's source(s) of lead. It is this step, together with the reporting of index cases to public health authorities,[5] that is essential to trigger an epidemiologic investigation, which in this case apparently led to closure of the smelter and evacuation of the heavily contaminated adjacent area. Similarly, an alert pediatrician trained in an eastern city where childhood plumbism is endemic recognized clinical plumbism in two children from Kellogg, Idaho, where he had gone to practice. He reported these cases which, in turn, resulted in the discovery of an epidemic of subclinical plumbism due to emissions from a large primary lead smelter in Kellogg.[6]

In addition to children who live near lead smelters, children (and other housemates) of lead workers who bring lead-bearing dust home on their work clothing are also at risk. Several clusters of such cases, particularly in relation to lead and asbestos, have been identified.[7] These cases illustrate the need for physicians to take both environmental and occupational histories. All family members of index cases should be considered regardless of age, and cases should be reported so that appropriate epidemiologic investigations and public health action can be undertaken.

Ceruse (lead carbonate), litharge (lead monoxide) and other oxides of lead and galena (lead sulfide) have been used in the Old World throughout recorded history as cosmetics and basic ingredients in medicaments, nostrums and folk remedies.[2] Lead sulfide is still used today as a black eye cosmetic and is known on the Indian subcontinent as *surma* and in the Arabic world as *kohl*. Recently, severe cases of plumbism in children from both cosmetic[8] and medicinal uses[9] of lead sulfide have been reported. The Greco-Romans used lead carbonate and the oxides of lead primarily in topical medica-